	Type	L #	Hits	Search Text	DBs	Time Stamp
1	IS&R	L1	645	(174/35GC).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/18 08:07
2	BRS	L2	69	1 and hinge	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/18 08:15
3	BRS	L3	14	"4980516"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/18 08:15
4	IS&R	L4	2	("4980516").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/11/18 08:15

	Comments	Error Definition	Errors
1			0
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US 20030054131A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2003/0054131 A1**

Ooshima et al. (43) **Pub. Date: Mar. 20, 2003**

(54) **CARRIER MEMBER MADE OF A UV RESISTANT FIBER-REINFORCED COMPOSITE MATERIAL AND PROCESS FOR PRODUCING THEREOF**

(76) Inventors: Akio Ooshima, Kanagawa (JP); Takashi Kobayashi, Kanagawa (JP); Kenichi Aoyagi, Kanagawa (JP); Daisuke Uchida, Tokyo (JP)

Correspondence Address:
KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614 (US)

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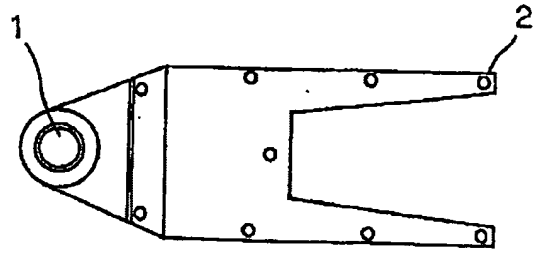
(57) ABSTRACT

This invention provides a carrier member made of a UV resistant fiber-reinforced composite material where a UV resistant coating material is applied on the surface of the fiber-reinforced composite material and a process for producing thereof. A preferable fiber-reinforced composite material is a fiber-reinforced plastic or carbon fiber-reinforced carbon composite material. A UV resistant coating material is one or more selected from the group consisting of ceramics, cermets, metals and alloys. The carrier member is produced by coating the surface of the fiber-reinforced composite material with a UV resistant coating material by spraying. This carrier member is advantageous in that it can exhibit properties inherent to a fiber-reinforced composite material such as a light weight, higher rigidity and higher heat resistance and that it little contaminates a precision instrument material when being used in cleansing with UV.



DOCUMENT-IDENTIFIER: US 20030054131 A1

TITLE: Carrier member made of a UV resistant fiber-reinforced composite material and process for producing thereof

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Detail Description Paragraph - DETX (51):

[0069] The primary carrier member made of a C/C composite thus obtained exhibited a bulk density of 1.90 g/cm.sup.3, a fiber volume content Vf=60%, an elongation modulus of 245 GPa, a thermal conductivity along the carbon fiber orientation direction of 400 W/mK and a thermal conductivity perpendicular to the carbon fiber orientation direction of 20 W/mK.

10	US 6367509 B1		USPAT	20020409	8	Th
11	US 6365257 B1		USPAT	20020402	26	Ch
12	US 6303096 B1		USPAT	20011016	6	Pit
13	US 6250378 B1		USPAT	20010626	58	Inf

US006542371B1

(12) **United States Patent**
Webb

(10) **Patent No.: US 6,542,371 B1**
(45) **Date of Patent: Apr. 1, 2003**

(54) **HIGH THERMAL CONDUCTIVITY HEAT TRANSFER PAD**

(75) Inventor: Brent J. Webb, Pasco, WA (US)

(73) Assignee: Intel Corporation, Santa Clara, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/704,963

(22) Filed: Nov. 2, 2000

(51) Int. Cl.[7] H05K 7/20

(52) U.S. Cl. 361/708; 361/704; 361/705; 361/706; 361/707; 361/709; 257/717; 174/16.3; 165/80.2; 165/80.3; 165/185; 428/408; 428/378; 442/117

(58) Field of Search 361/704, 705, 361/706, 707, 708, 709, 710, 717–719; 257/706, 717–719; 174/16.3; 165/80.2, 80.3, 104.33, 185; 428/408, 378; 442/117

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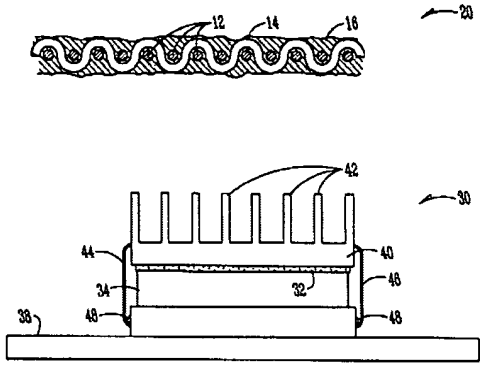
Primary Examiner—Boris Chervinsky
(74) *Attorney, Agent, or Firm*—Schwegman, Lundberg, Woessner & Kluth, P.A.

(57) ABSTRACT

A thermal pad for use in facilitating heat flow between a heat source surface and a heat sink surface includes a carbon fiber fabric that is impregnated with a thermal substance.

33 Claims, 2 Drawing Sheets



US-PAT-NO: 6542371

DOCUMENT-IDENTIFIER: US 6542371 B1

TITLE: High thermal conductivity heat transfer pad

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Detailed Description Text - DETX (3):

The present invention relates to a thermal pad structure having enhanced thermal heat transfer characteristics. The thermal pad structure utilizes a relatively high thermal conductivity carbon fiber fabric as a support structure for carrying a thermal substance, such as a phase change material or a thermal grease. The superior thermal characteristics of the carbon fiber material and continuous weave connecting both surfaces enhance the bulk conductivity of the thermal substance, thereby resulting in a relatively low thermal resistance interface between the heat transfer surfaces. In addition, the excellent structural qualities of the carbon fiber material enhance the convenience and reliability of the thermal pad. The thermal pad can be used as a thermal management tool for a wide variety of different electrical devices, circuits, and systems. For example, the pad can be used in connection with various digital devices that typically dissipate large amounts amount of energy during operation (e.g., microprocessors, chip-sets, digital signal processors (DSPs), application specific integrated circuits (ASICs), and others). In addition, the thermal pad can be used to facilitate heat flow away from various power devices such as power transistors, RF devices, chassis mount resistors, relays, and others. In fact, the thermal pad can be used to reduce thermal resistance in almost any scenario where heat is required to flow through an interface between two imperfect surfaces.

10	US 6367509 B1		USPAT	20020409	8
11	US 6365257 B1		USPAT	20020402	26
12	US 6303096 B1		USPAT	20011016	6
13	US 6250378 B1		USPAT	20010626	58